

pressure. In spite of the ingenuity of this explanation, its validity seems doubtful, for the stresses involved can at most be only a subsidiary cause of earthquakes, and consequently any effect due to them would naturally be looked for at the time when they vary most rapidly in amount rather than at that of their maximum.

The same publication contains a paper, of some importance in this connection, on daily periodic changes of level in artesian wells, by K. Honda. It is the account of a record, obtained by a self-registering instrument, of the daily changes in level of two artesian wells, 380 metres and 300 metres depth, in Tokio and Yokohama. Each of them showed a periodic change of level which is directly correlated with the tides in the neighbouring sea, and also a variation due to changes in barometric pressure, of such amount as to show that one-third of the changes in the first case, and one-fourth in the second, are absorbed by the rocks overlying the water-bearing stratum.

The catalogue of earthquakes felt in Austria during the year 1903, forming No. 26 of the *Mitteilungen* of the Austrian Earthquake Commission, is the last of the series which will be published under the auspices of the Academy of Sciences. In the introduction to the catalogue it is announced that from the beginning of 1904 the task of collecting and publishing the records of all earthquakes, whether of local or distant origin, observed in Austria, was taken over by the Zentralanstalt für Meteorologie und Geodynamik. The Earthquake Commission, having published the earthquake registers up to the end of 1903, will in future confine itself to the encouragement and publication of purely scientific investigations.

After the collapse of the campanile of St. Mark's, in 1902, there was a popular demand, inspired by the idea that the detonation was likely to precipitate the destruction of other historic buildings in Venice, for the cessation of the usual mid-day gun. The idea was, of course, unfounded, but to allay the alarm Prof. Vicentini was requested to instal one of his microseismographs, and his report has now been published. The instrument was attached to the wall of the ducal palace which faces the lagoon and is directly exposed to the sound waves of the cannon; it indicated a vertical displacement, in consequence of the report, of 0.012 mm. to 0.014 mm., and a horizontal displacement of 0.007 mm. to 0.012 mm., being about one-half of those produced by a person jumping on the floor of the room in which the instrument was installed, and one-fifteenth of the displacement caused by a high wind. From these figures it is evident that the sound waves of a cannon can have no appreciable effect on a building, though plaster may be detached where this has become loosened and separated from the wall by an air space.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 23.—"The Colour-physiology of the Higher Crustacea," Part iii. By F. Keeble and Dr. F. W. Gamble. Communicated by Prof. Sydney J. Hickson, F.R.S.

(1) The chromatophores of Hippolyte and Crangon are multicellular structures. Their branches show differentiation into a firmer ectoplasm and a more fluid mobile endoplasm in which the pigment occurs. (2) The formation of the pigments in the larval and post-larval chromatophores is described. (3) In addition to pigments, fat, in the form of colourless globules, occurs in the chromatophores of Hippolyte. This fat lies in special cells of the chromatophore, and exhibits a mobility similar to that of the pigments of the chromatophore. (4) If fed and kept in the dark, or if starved and kept in the light, Hippolyte loses little of its chromatophoric fat. Depletion of fat occurs, however, in starved, dark-kept animals. These, when exposed to sunlight for five or six hours, show fat in their chromatophores. These results show that the colourless chromatophoric fat is a reserve food material, and point to the conclusion that in the accumulation of this reserve fat light plays an important part. (5) At the time of settling on the weeds of the sea-shore, *Hippolyte varians* is a colourless or faintly brown-striped animal.

At this stage it is extremely sensitive to the light conditions of its environment, assuming the colour of its surroundings within twenty-four hours. If the environment be changed, sympathetic change of colour takes place in three days. Half- and full-grown Hippolyte are less susceptible. With them sympathetic colour-change occupies a week or more.

March 30.—"On the Distribution of Velocity in a Viscous Fluid over the Cross-section of a Pipe, and on the Action at the Critical Velocity." By J. Morrow. Communicated by Prof. H. S. Hele-Shaw, F.R.S.

Summary and Conclusion.—(1) The experiments provide a partial confirmation of the theoretically obtained law of velocity distribution, but show that this distribution can only be obtained under very special conditions, of which absolute freedom from obstructions and end effects are important; and hence (2) When the flow is direct and stream-lines exist, the velocity distribution is not necessarily exactly that which may be described as characteristic of "normal" flow. (3) At the critical velocity the irrotational straight line motion ceases and is followed by one in which the paths of the particles of fluid are eddying and turbulent. The law of distribution of mean linear velocity parallel to the axis simultaneously changes from the parabolic (or approximately parabolic) to that typical of eddying motion. (4) The critical velocity in question (being that at which eddying motion ceases to be transformed into direct motion, and not that at which a highly unstable stream-line motion is suddenly disturbed) is not accompanied by a sudden change in the velocity parallel to the axis at any point in the cross-section. On the other hand, as the total flux increases, the experiments show a gradual transition from one state to the other, due to the change which has occurred in the law of velocity distribution. (5) The observations have little bearing on the upper limit of stream-line flow, as observed by colour bands. They indicate, however, that the unstable direct motion would follow an approximately parabolic law of velocity distribution (as represented by the equation obtained for stream-line motion), and that at the higher critical velocity this distribution would suddenly change to that represented by the equation given for eddying motion. In this case, then, instead of a gradual change of velocity, there would actually be sudden and large changes in the velocity parallel to the axis at different points in the cross-section of the pipe. (6) The "Pitot law" ($v = \sqrt{2gh}$) is at least approximately true at exceedingly low velocities.

April 6.—"The Influence of Cobra-venom on the Proteid Metabolism." By Dr. J. Scott. Communicated by Sir Thomas R. Fraser, F.R.S.

Conclusions.—(1) Practically no change in rate of proteid metabolism was induced by the administration of cobra-venom, in spite of well marked local reaction. (2) A slight decrease in the proportion of urea nitrogen, quite insignificant compared with that produced by diphtheria toxin and various drugs, was observed. (3) A slight rise in the proportion of ammonia nitrogen occurred. (4) There was a slight rise in the proportion of nitrogen in purin bodies. (5) The nitrogen in other compounds showed no constant change. (6) The P_2O_5 excreted showed no constant change, but in two experiments there was a slight rise. The change produced in the proteid metabolism is, therefore, small, and such as it is, being in the directions of decreased elaboration of urea and increase in the proportion of nitrogen excreted as ammonia, it seems to indicate a slight toxic action on the hepatic metabolism rather than a general action on the proteid changes, and tends to confirm the view that the poison acts chiefly upon the nervous system.

Entomological Society, April 5.—Mr. F. Menifield, president, in the chair.—Specimens of a melanic Grammoptera, discovered by Mr. J. C. T. Poole at Enfield, and apparently quite distinct from any member of the genus taken in Britain: H. St. J. Donisthorpe. Mr. Gahan, to whom the species had been referred, considered it to be a form of *G. ruficornis*.—A specimen of *Megalopus melipoma*, Bates, an insect which so much resembles a bee that Bates had said they were indistinguishable in

nature: **M. Jacoby**.—Specimens of *Papilio macleayana* and *Hypocysta metirius* captured in Queensland, illustrating the use of "directive" markings in the Rhopalocera in influencing their enemies to attack non-vital parts: **A. Bacot**.—An example of *Ceratopterus stahli*, Wast., a beetle from Australia possessing notable powers of crepitation: **G. J. Arrow**.—A series of *Erebia alecto* (*glacialis*), var. *nicholli*, Obth., taken at about 8000 feet at Campiglio, South Tyrol, with specimens of *Dasydia tenebraria*, var. *wockearia*, caught in the company of the *Erebia*s in the same localities; when upon the wing the two species were not dissimilar: **A. H. Jones** and **H. Rowland-Brown**. Mr. Jones also exhibited examples of *Erebia melas* from the Parnassus Mountains, Greece, for comparison, and fine forms of butterflies found at Mendel, near Botzen.—A series of *Morpho adonis* from British Guiana, with the very rare dimorphic black and white female: **W. J. Kaye**.—The social web and pupal shells of *Eucheira socialis*, Westw., together with specimens of the perfect insect, being the actual nest from Mexico described and figured by Westwood in the *Transactions* for 1836: **Dr. F. A. Dixey**. After Dr. Dixey had read a note upon the habits of this and similar species, the Rev. W. T. Holland, of Pittsburg, Pa., U.S.A., gave his personal experiences of social silk-cocoon spinning species also from Mexico.—A note recently received from Mr. S. A. Neave giving further interesting evidence of the superstitious dread of larvæ with terrifying eye-like markings entertained by South African natives: **Prof. E. B. Poulton**.—Experiments to ascertain the vitality of pupæ subjected to submersion: **F. Merrifield**.—*Pseudacraea poggei* and *Limnas chrysippus*; the numerical proportion of mimic to model: **H. A. Byatt**.—A monograph on the genus *Ogyris*: **G. Bethune-Baker**.

Geological Society, April 5.—**Dr. J. E. Marr**, F.R.S. president, in the chair.—On the divisions and correlation of the upper portion of the Coal-measures, with special reference to their development in the midland counties of England: **R. Kidston**. The following classification of the Coal-measures is proposed by the author:—

Proposed names	Names previously used
(4) Radstockian Series	= Upper Coal-measures.
(3) Staffordian Series	= Transition Series.
(2) Westphalian Series	= Middle Coal-measures.
(1) Lanarkian Series	= Lower Coal-measures (including the Millstone Grit).

—On the age and relations of the phosphatic chalk of Taplow: **H. J. O. White** and **L. Treacher**. The rocks at the locality of Taplow are described in detail, and the following classification is adopted:—(E) Upper White Chalk (visible), 16 feet; (D) Upper Brown Chalk, or rich phosphatic band, about 8 feet; (C) Middle White Chalk, about 16 feet; (B) Lower Brown Chalk, or rich phosphatic band, about 4 feet; (A) Lower White Chalk (visible), 17 feet. Fossil-lists are given from each of the above divisions, and the authors conclude that the Lower White Chalk belongs to the zone of *Micraster cor-anguinum*, and the succeeding beds to that of *Marsupites testudinarius*; while the lower phosphate-band represents the lower part of the *Uintacrinus*-band, and the upper one that of the *Marsupites*-band of that zone.

Physical Society, April 14.—**Dr. R. T. Glazebrook**, F.R.S., past-president, in the chair.—Ellipsoidal lenses: **R. J. Sowter**. The paper extends the treatment of thin ellipsoidal or astigmatic lenses, and gives a simple solution for complex problems of the following types:—"To determine the astigmatic pencil, after refraction of an astigmatic pencil by an ellipsoidal lens." And "to find the ellipsoidal lens equivalent to two cylindrical lenses placed a definite distance apart, with their axes inclined at any angle." The method of treatment can be applied to crossed ellipsoidal lenses, in contact, or separated, and is applicable in general to astigmatic pencils.—Determination of the moment of inertia of the magnets used in the measurement of the horizontal component of the earth's field: **Dr. W. Watson**. One of the constants required

when determining the horizontal component of the earth's magnetic field by the ordinary method is the moment of inertia of the magnet which is used in the vibration experiment. It is usual to determine the moment of inertia of the cylindrical brass bar supplied with each instrument by calculation, then by measuring the period of the magnet alone, and when loaded with this bar to calculate the moment of inertia of the magnet. This method presupposes that the density of the inertia-bar is uniform throughout. It is not easy to secure a bar of which the density is uniform throughout, and further it is difficult to test whether such uniformity has been secured. The author thinks that more trustworthy and uniform results would be obtained by determining once for all, with very great care, the moment of inertia of a standard bar and then determining the moment of inertia of the bars supplied with the different magnetometers, by comparing them with the standard bar experimentally. In the paper is described an instrument suitable for comparing the moment of inertia of bars, together with some experiments made with a view to determine the moment of inertia of a standard bar, and an investigation of the influence of the air upon the period.—Exhibition of a series of lecture experiments illustrating the properties of the gaseous ions produced by radium and other sources: **Dr. W. Watson**.

Royal Astronomical Society, April 14.—**Mr. W. H. Maw**, president, in the chair.—Spherical aberration of object glasses: **A. E. Conrady**. The paper dealt with the difference of phase at the focus caused by the spherical aberration. Two different rigorous solutions, by which such differences could be conveniently computed, were deduced and discussed. The paper also dealt with the relation between these differences of phase and spherical aberration in the geometrical sense.—(1) A suggested arrangement for the mounting of a cœlostast; (2) point distributions on a sphere, with remarks on the determination of the apex of the sun's motion: **H. C. Plummer**.—The four-prism spectrograph attached to the Newall telescope of the Cambridge Observatory, with remarks on the general design of spectrographs for equatorials of large aperture, considered from the point of view of "tremor-discs": **H. F. Newall**.

Royal Meteorological Society, April 19.—**Mr. Richard Bentley**, president, in the chair.—An account of the observations at Crinan in 1904, and description of a new meteorograph for use with kites: **W. H. Dines**. These observations, which are carried out under the direction of a joint committee of the Royal Meteorological Society and of the British Association, are made with meteorographs attached to kites with the object of ascertaining the conditions prevailing in the upper atmosphere. During last summer the kites were flown from the deck of H.M.S. *Seahorse*, which was placed at the disposal of the committee by the Admiralty. Mr. Dines designed a new and inexpensive meteorograph, which he now fully described. The weather conditions of last summer were somewhat unusual, there being a decided preponderance of east and south-east winds. Near the summit of Ben Nevis the air was often dry, and was on several occasions warmer than the air at the same level at Crinan. As a rule, however, the temperature on Ben Nevis is generally much lower than the temperature in the free air at the same level. On several occasions temperature inversions were observed at levels between 3000 feet and 7000 feet. A fact previously noticed was again observed, viz. the decrease of strength of easterly winds with elevation.—Rate of fall of rain at Seathwaite: **Dr. H. R. Mill**. This is a discussion of the records from a Negretti and Zambra self-recording rain gauge during a period of eighteen months. Seathwaite, which is in Borrowdale, Cumberland, is in almost the wettest spot of the British Isles, the average yearly rainfall being about 137 inches. Dr. Mill's results seem to show that the rainfall at Seathwaite in an average year indicates a tendency to be greater during the hours of darkness than in daylight, that rather less than half the time during which rain is falling it continues without intermission for at least six hours at a time, and that rather more than half the total amount of rain is deposited in such long showers.

DUBLIN.

Royal Dublin Society, March 21.—Sir Howard Grubb, F.R.S., in the chair.—(a) The temperature of healthy dairy cattle, (b) the temperature of tuberculous cattle, not clinically affected: Prof. G. H. **Woodridge**. The author made 520 observations on 63 healthy dairy cattle which were subsequently submitted to the tuberculin test, and failing to react were considered free from the disease. His conclusions are that the temperature may vary between 100°·4 F. and 100°·8 F., with an average mean temperature of 101°·4 F. Feeding caused an average rise of 0°·3 F. above the temperature of the same cattle at the same time on other days, but not feeding. In the afternoon, between 4 and 5 o'clock, the average temperature was 0°·5 higher than at 8 a.m. Pregnant cows had an average temperature 0°·3 F. higher than the average of the other cattle in the same building. Tuberculous cattle numbering 74, apparently perfectly healthy, but subsequently reacting to tuberculin, were the subjects of 505 observations. These animals had a much wider range of variations. The average was 101°·7 F. The lowest observed was 100°·4 F. and the highest 104°·3 F. The widest range of an individual was from 100°·7 F. to 104°·3 F., with an average of 102°·2 F. (temperature taken 15 times). Out of 137 apparently healthy dairy cattle, 74 (54 per cent.) reacted to tuberculin, thus emphasising the advisability of using that agent in attempts to obtain a dairy free from tuberculosus.—On the petrological examination of macadam: Prof. J. **Joly**, F.R.S. Various specimens of macadam used on Scottish roads have been examined. The general results of the investigation are to elucidate the characteristics of these macadam, as well as apparent abnormalities of behaviour, and to demonstrate the value of petrological methods in such cases.—On the construction of fume-chambers with effective ventilation: Prof. W. N. **Hartley**, F.R.S. The results of a series of experiments on ventilation and of practical experience with fume-chambers have shown the conditions which are necessary for the removal of noxious fumes from a chemical laboratory with the greatest efficiency and the least possible trouble and expense. Measurements were made daily over a period of six months of the gas burnt, the air extracted, the difference between inside and outside temperatures, the barometric pressure, the direction of the wind and its strength. The direction and dimensions of the flues, and the relation of the passage of air up the flues to the cubic contents of the chambers, are stated. The average quantity of air exhausted per minute was 354 cubic feet per chamber of 51 cubic feet, and on an average the air of each chamber is completely changed every nine seconds. The small height of the flues, being 25 feet, renders such a means of ventilation as that described readily adaptable to small out-buildings, such as school laboratories. Details are given as to the construction of flues with a descending draught as fitted to a lecture table and fume-chamber in a lecture room.—On the structure of water-jets and the effect of sound upon them, part ii.: Philip E. **Belas**.

EDINBURGH.

Royal Society, February 20.—Sir John Murray in the chair.—On the graptolite-bearing rocks of the South Orkney Islands: Dr. J. Harvey **Pirie**. The presence of Silurian sedimentary rocks in these isolated islands indicates a former much greater extension of land in the area lying to the south-east of Cape Horn. The fossils *Pleurograptus* and *Discinocaris* indicate their age as corresponding to the Caradoc or Lower Llandovery, and the structure of the rocks suggests that they belong to the same series as the Silurian rocks of the Argentine.—Palaeontology of the Upper Old Red Sandstone of the Moray Firth area: Dr. R. H. **Traquair**. The fossils discussed in this paper, which embodied the research of the past fourteen years, were almost entirely fish remains, other remains, in the shape of badly preserved plants and certain tracks, probably of invertebrate animals, being rare. Twenty-one species of fish were recorded, of which only seven were known from the Upper Old Red of this region when the author took up the subject. The character of the fish remains suggested the division of the strata of the Moray Firth Upper Old Red into three

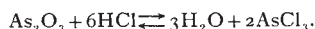
zones, these being, in ascending order, the Nairn, Alves, and Rosebrae beds. Reference was made to the affinity of the Rosebrae fish-fauna with that of Dura Den, the yellow sandstones of which locality constitute the highest member of the Upper Old Red of Fifehire. Dr. Traquair specially desired to acknowledge his great indebtedness to Mr. W. Taylor, of Lhanbryde, without whose assistance in furnishing material the paper could not have been prepared.—The constitution of complex salts, i., derivatives of the sesquioxides: A. T. **Cameron**. Retger's method of investigating isomorphous mixtures was applied to the blue chromoxalates of ammonium and potassium, and showed that they had no definite composition, there being, therefore, no conclusive reason for doubling the formulae of these and similar compounds. The striking analogy between the so-called double fluorides, chlorides, cyanides, &c., and the complex derivatives of dibasic acids was pointed out. It was shown that to almost all such compounds, whether derived from monobasic or dibasic acids, simple constitutions can be assigned by supposing the hydroxyl radicals of the metallic hydroxide to be replaced by complex groups.—Theorems relating to a generalisation of Bessel's function, ii.: Rev. F. H. **Jackson**.

March 6.—Lord M'Laren in the chair.—A study of three vegetarian diets: Drs. Noël **Paton** and J. C. **Dunlop**. Of the three diets described, one was a totally insufficient diet of bananas, a second was a fairly typical vegetarian diet showing the difficulty of avoiding an excess of sugary food, and the third was the far from economical diet of a vegetarian glutton. These were compared with the diets of the labouring classes in cities as illustrated by the author's own investigations in Edinburgh, and those of Rowntree, Alswater, and Lumsden respectively in York, New York, and Dublin, and as regards rural districts by Wilson Fox's report. It was shown that these normal diets more nearly approached the physiological standard than the vegetarian diets studied.—A further contribution to the fresh-water plankton of the Scottish lochs: W. and G. S. **West**. The thirty-six lochs studied were in the north-west Highlands. There was an abundance of Desmids, a fact attributed to the geological character of the country. The *Protococcoideæ* were not abundant, in marked contrast to what occurs in Continental Europe. Diatoms were very abundant, and did not disappear in May and June. *Myxophyceæ*, again, were relatively few. The Swedish lakes alone approached the Scottish in the richness of the plankton. The Danish plankton was relatively much poorer in *Chlorophyceæ*, especially *Conjugates*. This was to be attributed principally to the fact that the geological formations are mostly of Tertiary age.—On the Sarcodina of Loch Ness: Dr. E. **Penard**. Of a list of nearly fifty species of Rhizopods and Heliozoa obtained at depths of upwards of 250 feet, several were of interest on account of their rarity, some being found for the first time in Europe, others being previously known only from the Lake of Geneva. The majority of the Rhizopoda had probably been derived from the shallow margins of the lake or from the neighbouring peat bogs; but some half dozen species or varieties were regarded as peculiar to the abyssal portions of large lakes.—The Rhizopods and Heliozoa of Loch Ness: J. **Murray**. In this paper the list of species given in the previous paper by Penard was supplemented by a number of species observed by the Lake Survey, bringing the list of Loch Ness Sarcodina up to sixty-six species. The difficulty of accounting for the transmission of peculiar abyssal forms from one deep lake to another was met by the suggestion that the abyssal forms originate separately in each lake and are probably not good permanent species, but modified forms due to the direct action of the environment on the growing individual.

PARIS.

Academy of Sciences, April 17.—M. Troost in the chair.—Second note on the principle of cellular flotation in ships: M. **Bertin**.—Mixed treatment by arsenious acid and trypan red of infection due to *Trypanosoma*: A. **Laveran**. Fresh experiments on monkeys confirm the favourable results previously obtained on rats and dogs.—Observations on the new comet Giacobini (1905, March 26) made at Toulouse Observatory: F. **Rossard**.—On the

differential equation $y'' + \lambda A(x)y = 0$: Max **Mason**.—On the relation which exists between the velocity of combustion of powders and the pressure: R. **Liouville**.—Optical properties of iono-plastic iron: L. **Houllevigue**.—On the theory and imitation of the motion of sails: A. **Bazin**.—On the use of the centrifugal method in the analysis of cocoa and chocolate: F. **Bordas** and M. **Touplain**. It is necessary, to avoid some practically impossible filtrations, to use an apparatus capable of nearly 2000 revolutions a minute.—New method for a quick analysis of milk: F. **Bordas** and M. **Touplain**. By centrifugal means one avoids much filtration as well as the protracted desiccation of the casein.—An apparatus for giving warning of the presence of luminous gas and afterdamp: MM. **Hanger** and **Pescheux**.—The crystalloluminescence of arsenious acid: M. **Guinchant**. This appears to be due to a chemical phenomenon corresponding with the reversible reaction



—On the emission spectrum of the high tension electric arc: J. **de Rowalski** and P. **Joye**.—On a simple method for the study of oscillating sparks: G. A. **Hemsalech**. The method depends on the fact that a current of air directed on such a spark can separate out the oscillations. —Apparatus and methods in the medical applications of static electricity: L. **Benoist**. An attempt to systematise the usage based on the consideration of electric density. —On the mode of formation of some monosubstituted derivatives of urethane: F. **Bodroux**. When small quantities of ethyl carbonate are dropped into an ether solution of the magnesium derivative of an aromatic primary amine, a lively reaction takes place. If aniline be used, phenylurethane is formed.—On the mineralogical analysis of arable earths: J. **Dumont**. The author describes methods for quantitatively determining the proportions of sand, mica, felspar, quartz, &c.—On some Crustacea resulting from the expedition of the *Princess Alice*: H. **Coutiere**. By the use of a net with a large aperture a considerably more valuable collection was made.—On the excitation of nerves by a minimum of energy, and its application to electrodiagnosis: M. **Cluzet**. By experiments made on the nerves of human beings, it has been found through the application of a formula that the duration of minimum excitation may be 0.00020 second.—Physiology of the spleen: MM. **Charrin** and **Moussu**. The experiments made tended to elucidate the much discussed question as to the functional relationship between the liver and the spleen.—The action of intestinal fluid on enteric secretion: A. **Frouin**. Many facts seem to prove that this exciting action is not due to secretin.—Researches on animal lactase: H. **Bierry**. The experiments show that lactase is not contained in the pancreatic juice of suckling puppies.—On the production of alcohol and acetone by muscles: F. **Maignan**. The author replies in the affirmative to the question as to whether these substances, which are normally present in muscle tissue, arise by alcoholic fermentation of glucose by the agency of protoplasm. But while the acetone continues to be formed, the alcohol is sooner or later destroyed again.

DIARY OF SOCIETIES.

THURSDAY, APRIL 27.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—*Discussion*: Mr. B. J. Arnold's Address to the Joint Meeting at St. Louis on the Problem of the Alternate Current Motor applied to Traction.—*Paper*: The Alternate Current Series Motor: F. Creedy.

FRIDAY, APRIL 28.

EPIDEMIOLOGICAL SOCIETY, at 8.30.

MONDAY, MAY 1.

ROYAL INSTITUTION, at 5.—Annual Meeting.
SOCIETY OF CHEMICAL INDUSTRY, at 8.—(1) The Study of the Action of Hydrogen Peroxide on a Photographic Plate in the Dark; (2) On the Influence of the Length of the Time of Development on the Degree of Darkening of the Photographic Plate: Prof. Chiri Otsuki.
VICTORIA INSTITUTE, at 4.30.—The Influence of Physiological Discovery on Thought: Dr. E. P. Frost.

TUESDAY, MAY 2.

ZOOLOGICAL SOCIETY, at 8.30.—On *Leucosolenia contorta*, Bowerbank, *Ascandra contorta*, Haeckel, and *Ascetia spinosa*, Lendenfeld: Prof

E. A. Minchin.—Some Notes upon the Anatomy of the Ferret-Badger (*Helictis personata*): F. E. Beddard, F.R.S.—Contributions to the Osteology of Birds, Part vii., Eurylæmida; with Remarks on the Systematic Position of the Group: W. P. Pycraft.

ROYAL INSTITUTION, at 5.—The Study of Extinct Animals: Prof. L. C. Miall, F.R.S.

SOCIETY OF ARTS, at 4.30.—The Monumental Treatment of Bronze: J. Starkie Gardner.

WEDNESDAY, MAY 3.

ENTOMOLOGICAL SOCIETY, at 8.—The Structure and Life-history of *Psychoda sexpunctata*, Curtis: J. A. Dell.

SOCIETY OF PUBLIC ANALYSTS, at 8.

SOCIETY OF ARTS, at 8.—Recent Excavations in Rome: Mrs. Burton-Brown.

THURSDAY, MAY 4.

ROYAL INSTITUTION, at 5.—Flame: Sir James Dewar, F.R.S.

CHEMICAL SOCIETY, at 8.—The Synthesis of Substances Allied to Adrenaline: H. D. Dakin.—Methylation of *p*-Aminobenzoic Acid by Means of Methyl Sulphate: J. Johnston.—Some Notes on Sodium Alum: J. N. Wadmore.—Camphoryl- ψ -Semicarbazide: M. O. Forster and H. E. Fierz.

RÖNTGEN SOCIETY, at 5, (1) to Medical Members only. Forty-two Cases of Uteral Calculus Diagnosis by X-Rays proved by Operation on the Passage of the Calculi; (2) at 8.15 p.m., to the General Meeting, Measurement and Technique in Therapeutic Dosage: Dr. C. Lester Leonard, Philadelphia.

LINNEAN SOCIETY, at 8.—Ecology: its Present Position and Probable Development: A. G. Tansley.—The Flora of Gough Island: R. N. R. Brown.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY, at 7.30.—Annual General Meeting.—At 8.—Card-Indexing and Filing: J. C. Osborne.

FRIDAY, MAY 5.

ROYAL INSTITUTION, at 9.—Problems underlying Nutrition: Prof. H. E. Armstrong, F.R.S.

SATURDAY, MAY 6.

ROYAL INSTITUTION, at 3.—Moulds and Mouldiness: Prof. Marshall Ward, F.R.S.

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